Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for processing an image taken by a camera of a handheld video phone system for playback on a display of at least one other handheld video phone system connected in a network, each handheld video phone system having an image processor, the method comprising acts of:

providing the image containing at least a portion of a head of a user of the video phone system to the image processor;

estimating an orientation of said head in said image using a pattern recognition technique, said pattern recognition technique comprises a classification technique;

if the orientation of said head is estimated to not be frontal,

computing a three dimensional model of a face surface of said user using a computer vision technique based on the result of the classification technique; and

adjusting an orientation of said three dimensional face

surface model to provide a frontal view,

wherein the camera and the display of the handheld video phone system are integrated into a single unit and wherein the camera is oriented in the single unit to capture the portion of the head of the user during use of the handheld video phone system.

2. (Previously presented) The method of claim 1, wherein said computing act further comprises an act of using a symmetric face assumption to obtain a complete three dimensional face surface model for a profile view.

3. (Previously presented) The method of claim 1, wherein said computing act further comprises an act of employing a structure from motion technique to obtain said three dimensional face surface model.

4. (Canceled)

5. (Previously presented) The method of claim 1, wherein said computing act generates a morphable three dimensional model.

6. (Previously presented) The method of claim 1, further comprising an act of mapping said three dimensional face surface model having an adjusted orientation to a two dimensional space.

7. (Previously presented) The method of claim 1, further comprising an act of transmitting said adjusted image to a remote user.

8. (Previously presented) The method of claim 1, further comprising an act of presenting said adjusted image to a local user.

9. (Currently amended) An image processor for processing an image taken by a camera of a handheld video phone system for playback on a display of at least one other handheld video phone system connected in a network, the image processor comprising: a memory for storing an image containing at least a portion of a head of a user of the handheld video phone system; and

a head pose corrector that

estimates an orientation of said head in said image using a pattern recognition technique, said pattern recognition technique comprises a classification technique if the orientation of said head is estimated to not be frontal; computes a three

dimensional model of a face surface of said user using a computer vision technique based on the result of the classification technique; and

adjusts an orientation of said three dimensional face surface model to provide a frontal view,

wherein the camera and the display of the handheld video phone system are integrated into a single unit and wherein the camera is oriented in the single unit to capture the portion of the head of the user during use of the handheld video phone system.

10. (Original) The image processor of claim 9, wherein said head pose corrector is further configured to use a symmetric face assumption to obtain a complete three dimensional face surface model for a profile view.

11. (Original) The image processor of claim 9, wherein said head pose corrector is further configured to employ a structure from motion technique to obtain said three dimensional face surface model.

12. (Canceled)

13. (Original) The image processor of claim 9, wherein said three dimensional face surface model is a morphable three dimensional model.

14. (Original) The image processor of claim 9, wherein said head pose corrector is further configured to map said three dimensional face surface model having an adjusted orientation to a two dimensional modified image.

15. (Original) The image processor of claim 14, wherein said two dimensional modified image is transmitted to a remote user.

16. (Original) The image processor of claim 14, wherein said two dimensional modified image is presented to a local user.

17. (Currently amended) A video phone system having an image processor for processing an image taken by a camera of a handheld video phone system for playback on a display of at least one other handheld video phone system connected in a network, the system comprising:

a memory for storing an image containing at least a portion of a head of the video phone system user; and

a head pose corrector that

estimates an orientation of said head in said image using a pattern recognition technique, said pattern recognition technique comprises a classification technique if the orientation of said head is estimated to not be frontal computes a three dimensional model of a face surface of said video phone system user using a computer vision technique based on the result of the classification technique; and

~~(iv)~~ adjusts an orientation of said three dimensional face surface model to provide a frontal view,

wherein the camera and the display of the handheld video phone system are integrated into a single unit and wherein the camera is oriented in the single unit to capture the portion of the head of the user during use of the handheld video phone system.

18. (Original) The video phone system of claim 17, wherein said head pose corrector is further configured to use a symmetric face assumption to obtain a complete three dimensional face surface model for a profile view.

19. (Original) The video phone system of claim 17, wherein said head pose corrector is further configured to employ a structure from motion technique to obtain said three dimensional face surface model.

20. (Canceled)

21. (Original) The video phone system of claim 17, wherein said head pose corrector is further configured to map said three dimensional face surface model having an adjusted orientation to a two dimensional modified image.

22. (Original) The video phone system of claim 21, wherein said two dimensional modified image is transmitted to a remote user.

23. (Original) The video phone system of claim 21, wherein said two dimensional modified image is presented to a local user.

REMARKS/ARGUMENTS

This Amendment is being filed in response to the Final Office Action mailed May 19, 2009, which has been reviewed and carefully considered.

Reconsideration and allowance of the present application in view of the amendments made above and the remarks to follow are respectfully requested.

Claims 1-3, 5-11, 13-19 and 21-23 are pending in the application. Claims 1, 9, and 17 are independent claims.

In the Final Office Action, claims 1-3, 5-11, 13-19 and 21-23 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,806,898 to Toyama ("Toyama") and U.S. Patent No. 6,707,933 to Mariani ("Mariani"), and in view of U.S. Patent Publication No. 2002/0159627 to Schneiderman ("Schneiderman") further in view of U.S. Patent Publication No. 2003/0064685 to Kim ("Kim"). The rejection of claims 1-3, 5-11, 13-19 and 21-23 is respectfully traversed. It is respectfully submitted that claims 1-3, 5-11, 13-19 and 21-23 are allowable over any combination of Toyama, Mariani, Schneiderman and Kim for at least the following reasons.

It is undisputed that Toyama, Mariani, Schneiderman fail to teach, disclose or suggest "a concept of the camera and the display

of the handheld video phone system are integrated in a single unit and thus would not be able to provide an image containing at least a portion of a head of a user of the video phone system to the image processor." (See, Final Office Action, page 5.)

Kim is cited to provide that which is admitted missing from each of Toyama, Mariani, Schneiderman, however, it is respectfully submitted that reliance on Kim is misplaced.

Kim shows a portable digital camera communication apparatus that has a digital camera that has a lens 103 (see, Kim, FIG. 2, Abstract). Kim is clear that the (emphasis added) "lens 103 [of the camera] is disposed within the lens housing 102a to be exposed in a longitudinal direction of the first housing 10." Kim shows that "[a]n arrow of the digital camera lens 103 of FIG. 2 indicates a direction of photographing an object." (See, Kim, FIG. 2 and paragraph [0035].) Thus in Kim, it is clear that the camera of Kim is not oriented in the single unit to capture the portion of the head of the user during use of the handheld video phone system.

It is respectfully submitted that the method of claim 1 is not anticipated or made obvious by the teachings of Toyama, Mariani, Schneiderman and Kim. For example, no combination of Toyama, Mariani, Schneiderman and Kim teaches, discloses or suggests, a

method that amongst other patentable elements, comprises (illustrative emphasis added) "providing the image containing at least a portion of a head of a user of the video phone system to the image processor; estimating an orientation of said head in said image using a pattern recognition technique, ..., wherein the camera and the display of the handheld video phone system are integrated into a single unit and wherein the camera is oriented in the single unit to capture the portion of the head of the user during use of the handheld video phone system" as recited in claim 1, and as similarly recited in each of claims 9 and 17.

Based on the foregoing, the Applicants respectfully submit that independent claims 1, 9 and 17 are patentable over Toyama, Mariani, Schneiderman and Kim and notice to this effect is earnestly solicited. Claims 2-3, 5-8, 10-11, 13-16, 18-19, and 21-23 respectively depend from one of claims 1, 9, and 17 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of the claims. Accordingly, separate consideration of each of the dependent claims is respectfully requested.

Accordingly, it is respectfully submitted that independent claims 1, 9, and 17 are allowable, and allowance is thereof

respectfully requested. In addition, it is respectfully submitted that claims 2-3, 5-8, 10-11, 13-16, 18-19, and 21-23 should also be allowed at least based on their dependence from the independent claims.

In addition, Applicants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Applicants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.